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SERVICE MANUAL 1040



marantz

model 1040

Stereo Console Amplifier

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1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 1040 Stereo Console Amplifier.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instruction should be read carefully. No attempt should be made to proceed without a good understanding of the operation in the circuits.

The part lists furnish information by which replacement part may be ordered from the Marantz Company. A simple description is included for parts which can be usually be obtained through local suppliers.

2. PRE-AMPLIFIER

Signals from the input jacks (TUNER, TAPE, AUX) are applied to the SELECTOR switch.

Signals from the PHONO jacks is applied to the other section of the SELECTOR switch, then, led to the phono-amplifier and equalized to match the RIAA curve for flat frequency response. The gain of the phono-amplifier consisting of direct coupled circuit (H401 and H403) is 38dB.

The outputs of the phono-amplifier are led to the SELECTOR switch. The SELECTOR switch selects one of signals from PHONO, TUNER, or AUX jacks and send it to the TAPE MONITOR switch and TAPE OUT jacks. The selected signals are then applied to the BALANCE and VOLUME controls, then to the pre-amplifier consisting of PE01, PE03 and PE05 through MODE switch.

The frequency response is varied by the BASS and TREBLE controls, and the resultant output are led to main amplifier through High-cut filter network. This network is switched in and out from the circuit by the pushswitch.

3. MAIN AMPLIFIER

Differential amplifier consists of the transistors H701 and H703 to provide satisfactory D.C. stability.

The transistor H705 drives the inverter transistors H711 and H713 which, in turn, drive the power stage consisting of H001 and H002. Transistors H707 and H709 are current limiter operating as a power transistor protection circuit.

Excessive current flow in the power output stage is detected by the resistors R751 and R753 and the resultant variation is applied to the transistors H707 and H709 and make them turned on. This decreases the base biasing current for H711 and H713. In this way the current flow in the power output stage (H001 and H002) is restricted within a safe predetermined value.

4. POWER SUPPLY UNIT

This power supply unit consisting of a transistor H801, which operates as a ripple filter, provides +35V DC to the Phono-amplifier and the Tone Amplifier.

5. TROUBLE ANALYSIS

1. Excessive line consumption
 - a. Check for shorted H802 through H806.
 - b. Check for shorted transistor H001 through H004.
Check L001 for short.
2. No line consumption or zero bias
 - a. Check line cord, fuse, shorted H005, H006.
 - b. Check for open rectifiers H802 through H806.
3. High hum and noise level
 - a. Check filter capacitors C002, C003, C805, C806.
4. Parasitic oscillation
 - a. Check for defective C707, 708, C715, C716.

6. POWER AMPLIFIER ADJUSTMENT

1. Connect a high-sensibility voltmeter between J709 + and J711 - ; then, adjust the trimming resistor R763 for 20mV DC. For other channel connect a high-sensibility voltmeter between J720 + and J721 - ; then, adjust trimming resistor R764 for 20mV DC.
2. Connect a high-sensibility voltmeter between J707 and chassis; then, adjust a trimming resistor R761 for 0mV DC. For other channel connect a high-sensibility voltmeter between J718 and chassis; then, adjust R762 for 0mV DC.

7. PERFORMANCE VERIFICATION

Test Procedure

A. Test Equipment

Refer to Table 1 for required test equipment.

B. Preliminary Procedures

1. Make the test setup shown in Figure 1 with the instrument controls set in the following positions:

Line Switch	off
Variable-line switch	variable
Watt Meter Switch	on
Variac	0 (fully CCW)
Load	8 ohms (0.5 mfd – off)
Audio Generator	Frequency 1kHz

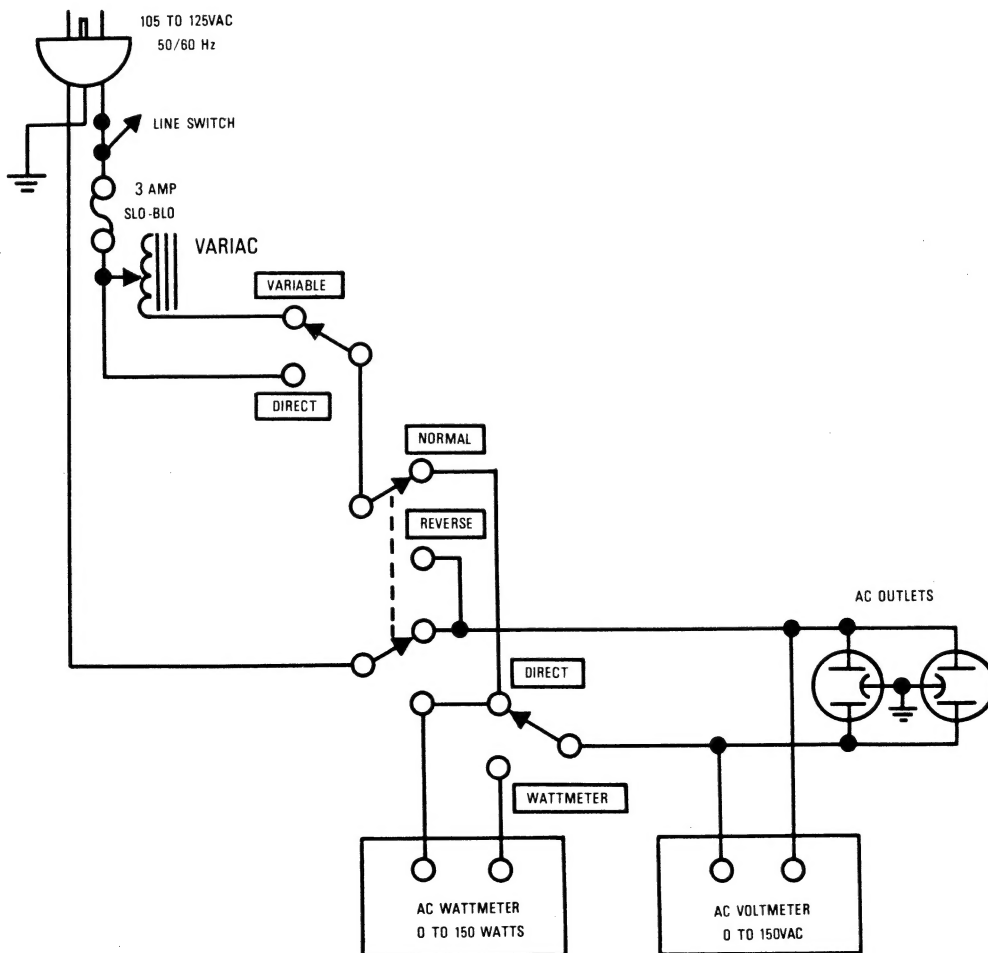


Figure 1. AC Power Control Box Simplified Schematic

Output	5V range
Gain	Minimum
AC Volt Meter	30V range

2. Make sure that connections between the resistive load and the system terminals of the Model 1040 have negligible resistance compared with the resistance of the load itself. Appreciable resistance in wiring adds to the total load, resulting in inaccurate measurements of output power.
3. Connect amplifier output to load and connect AC cord to line power. Connect a shorting plug to the PHONO INPUT jack of the Model 1040.
4. Remove the top cover.

C. Total Hum and Noise Test

1. With shorting plugs connected to the PHONO INPUT jacks and a 8-ohm resistive load connected across the speaker system output terminals, connect a distortion analyzer across the load.

NOTE: In this test and tests that follow, if distortion analyzer used does not contain a built-in voltmeter, a VTVM may be substituted.

2. Set the distortion analyzer controls for voltage measurements and apply power to the amplifier. Set the VOLUME control fully CCW. Set the SELECTOR switch to PHONO.
3. If the distortion analyzer indicates more than 1.0mV, refer to the trouble analysis section of this manual.
4. Set the VOLUME control fully CW. If the distortion analyzer indicates more than 15mV refer to the trouble analysis section of this manual.

D. Maximum Power Output

1. Connect the audio oscillator to the AUX input. Set audio oscillator frequency to 1kHz. Set SELECTOR switch to AUX.
2. With the distortion analyzer connected across the output load (8 ohms), set the analyzer on the 30V AC scale.
3. Turn the analyzer on and increase the audio oscillator output to 150mV, and verify the analyzer indicates about 12.6V.

E. Harmonic Distortion Test

1. Set the frequency of the audio oscillator and the distortion analyzer to 20kHz.
2. Set the controls of the analyzer for voltage measurement on the 30-volt scale.
3. Adjust the audio oscillator output level until the analyzer meter indicates 12.6 volts.
4. Switch the distortion analyzer to Set Level – Manual mode, and adjust SENSITIVITY for full scale reading on 0–1 scale.
5. Measure the total harmonic distortion with the analyzer and verify it is less than 0.3%.

NOTE: Any parasitic oscillation in the amplifier will be displayed on the oscilloscope when capacitance is switched into the load.

6. Switch the distortion analyzer back to SET LEVEL MANUAL. (Do not adjust sensitivity of analyzer).
7. Change the frequency of the audio oscillator and distortion analyzer to 1kHz. Adjust audio oscillator output as necessary to have a full scale reading on the 0–1 scale on the analyzer.
8. Measure the distortion, verifying it is no greater than 0.3%.
9. Repeat steps 7 and 8, changing frequency to 20Hz. Distortion should be no more than 0.3%.
10. Check for parasitic oscillations; there should be none.

F. Channel Separation

1. Set an audio oscillator to 20kHz. Connect the audio oscillator to channel L AUX input only, with shorting plug (10 kohms) in channel R AUX input. Connect distortion analyzer to SPEAKER output terminals channel L.
2. Adjust oscillator output 1V.
3. Attenuate the VOLUME control until 10W (8.9V) position on distortion analyzer; then, set the distortion analyzer to 0dB.

4. Measure channel R output. Distortion analyzer should indicate -30dB or greater.
5. If indication is less than -30dB , remove input wires which connected SELECTOR to pre-amp. board; then, reach out the best location.

8. TEST EQUIPMENT REQUIRED FOR SERVICING

Table 1 lists the test equipment required for servicing the Model 1040 Stereo Console Amplifier. The wattmeter, AC voltmeter, and variac may be assembled as a test fixture as shown schematically in Figure 1, and the load resistors and AC ammeter may be assembled into a second test fixture as shown in Figure 2.

Item	Manufacturer and Model No. (or equivalent)	Use
Distortion Analyzer	Hewlett Packard, Model 331A or 333A	Measures distortion and voltage of amplifier output.
Audio Oscillator	Weston Model CVO-100P (NOTE: Less than 0.02 percent residual distortion is required.)	Sinewave and squarewave source.
Oscilloscope	Tektronix, Model 503; Data, Model 555	Waveform analysis and troubleshooting.
VTVM	RCA Senior Volt-Ohmyst, Model WV-98C	Voltage and resistance measurements.
AC Wattmeter	Simpson, Model 390	Monitors primary power consumption of amplifier.
AC Ammeter (0 to 10 amps)	Commercial Grade	Monitors amplifier output under short circuit condition.
Line Voltmeter (0 to 150 vac)	Commercial Grade	Monitors potential of primary power to amplifier.
Variable Autotransformer (0 to 140 vac, 10 amps)	Powerstat, Model 116B	Adjusts level of primary power to amplifier.
Shorting Plug	Use phono plug with 600 ohms across center pin and shell.	Shorts amplifier input to eliminate noise pickup.
Power Supply Bleeder Resistor (10 ohms at 1W)	Commercial Grade	Discharges power supply filter capacitors prior to disassembly or resistance measurements.
Output Load Resistor ($8\Omega \pm 0.5\%$, 250W)	Commercial Grade	Provides 8-ohm load for amplifier output termination.
Output Load Resistor ($4\Omega \pm 0.5\%$, 250W)	Commercial Grade	Provides 4-ohm load for amplifier output termination.
Output Load Capacitor (0.5 mfd)	Mylar	Provides capacitive load for instability checks.
AC Power Control Box	Optional Item. Fabricate in accordance with Figure 1.	Monitors and controls primary power for amplifier.
Amplifier Output Load Box	Optional Item. Fabricate in accordance with Figure 2.	Provides various amplifier loads and can monitor shorted output.

Table 1. Test Equipment Required for Servicing

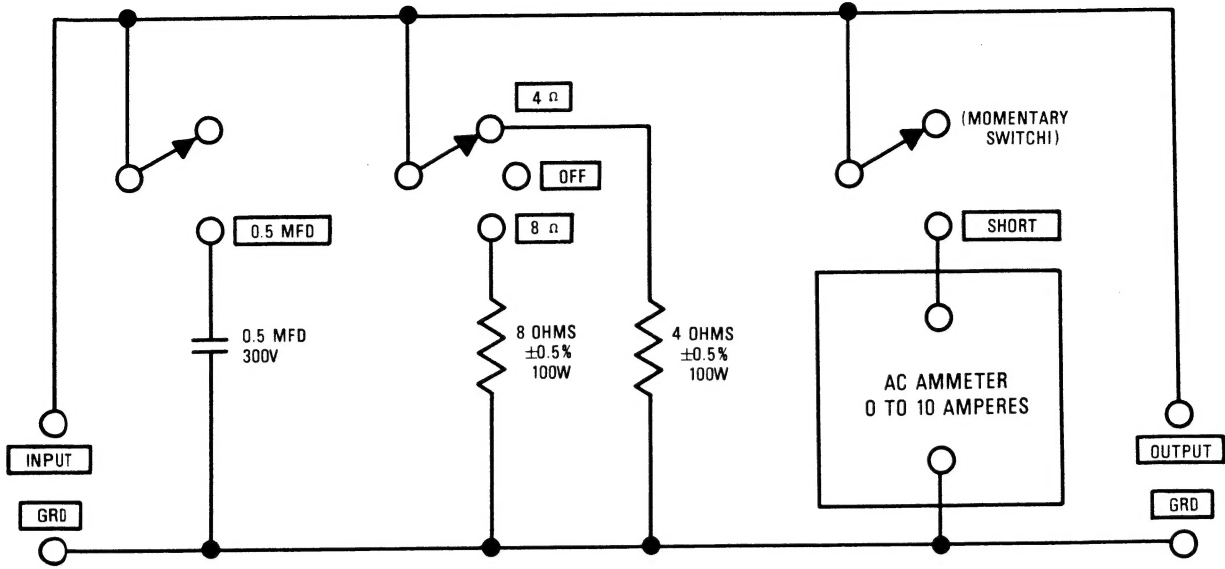


Figure 2. Amplifier Output Load Box Simplified Schematic

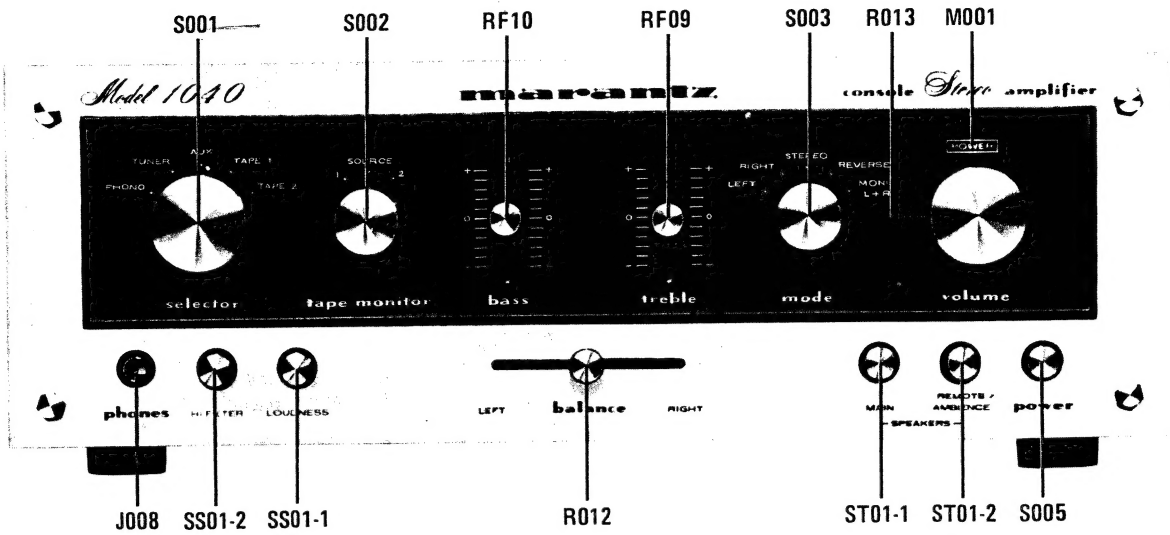


Figure 3. Front Panel Adjustments and Component Locations

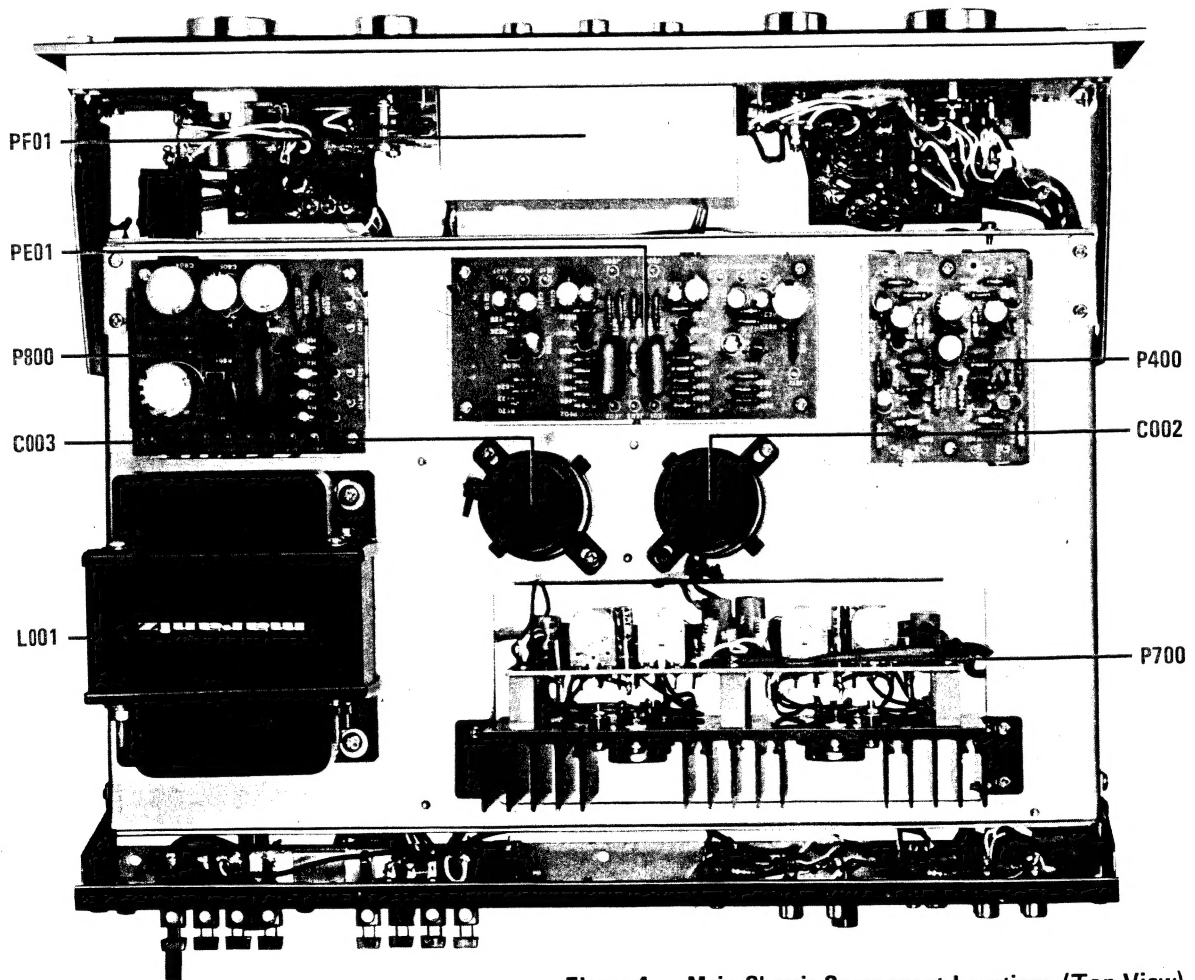


Figure 4. Main Chassis Component Locations (Top View)

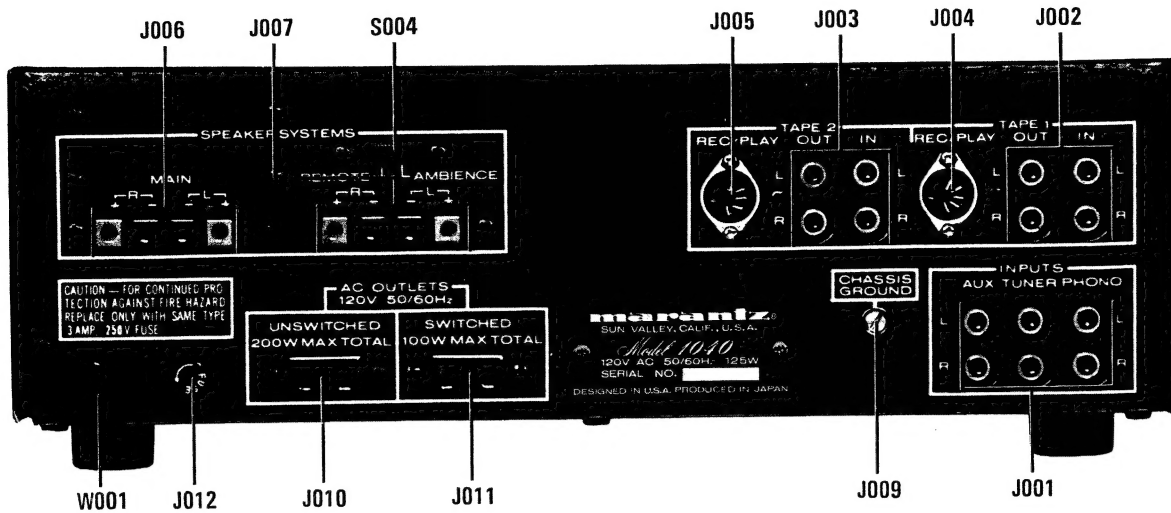


Figure 5. Rear Panel Adjustment and Component Locations

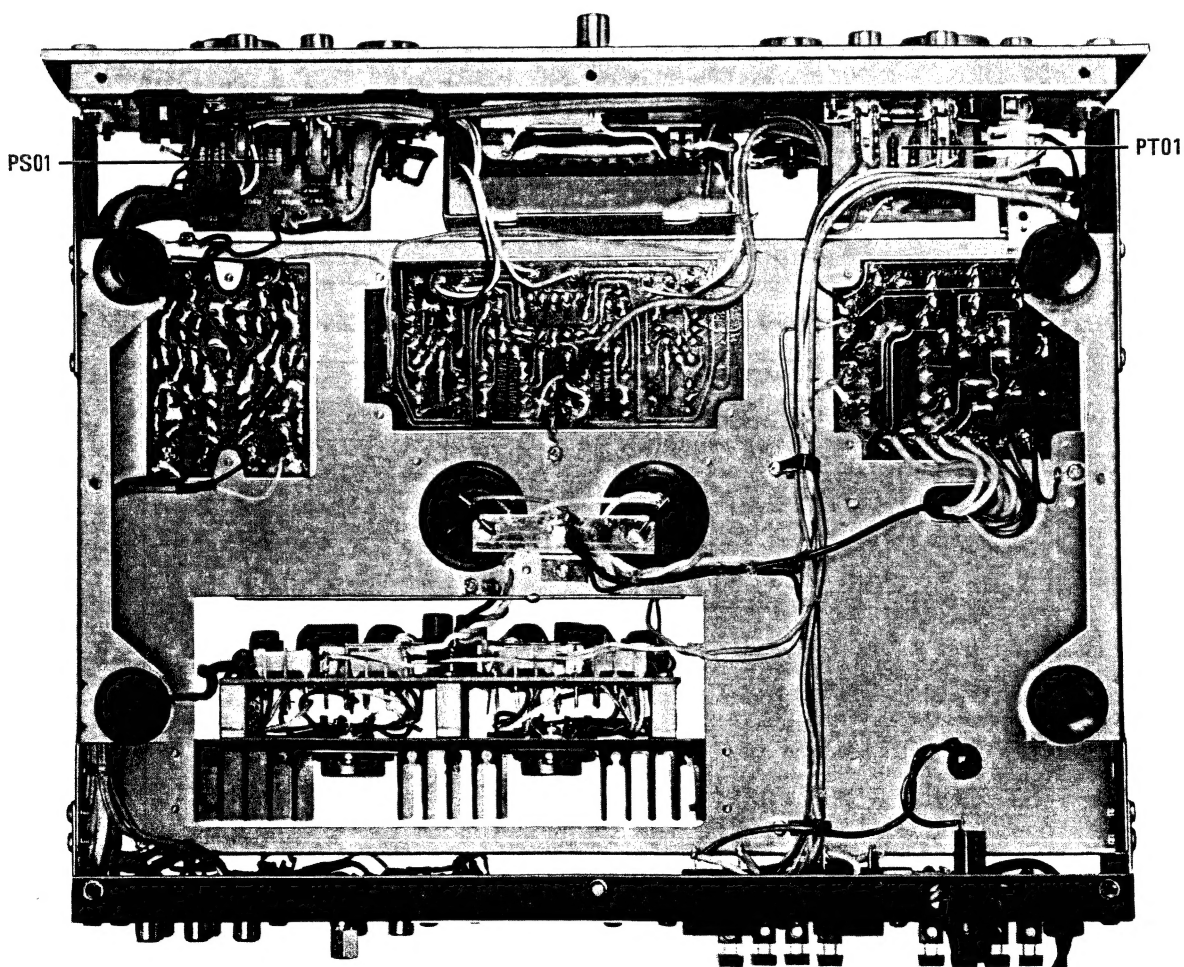


Figure 6. Main Chassis Component Locations (Bottom View)

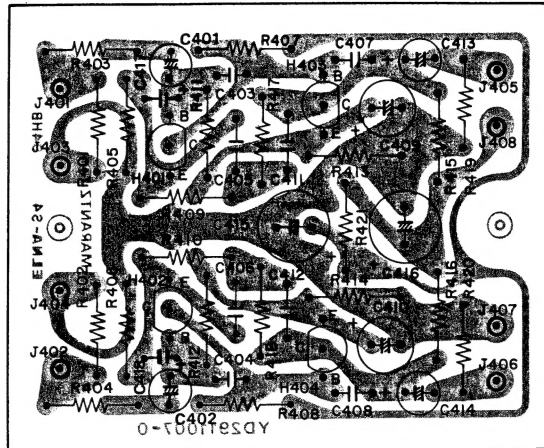


Figure 7. Phono Amplifier Assembly P400 Component Locations

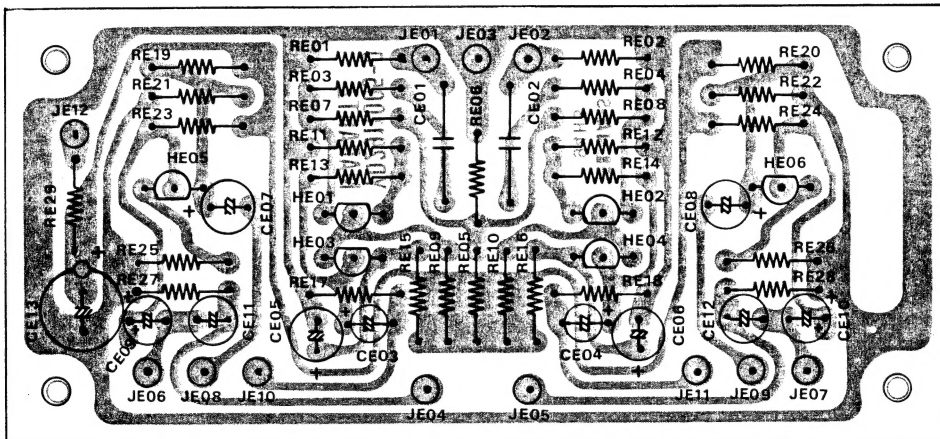


Figure 8. Tone Amplifier Assembly PE01 Component Locations

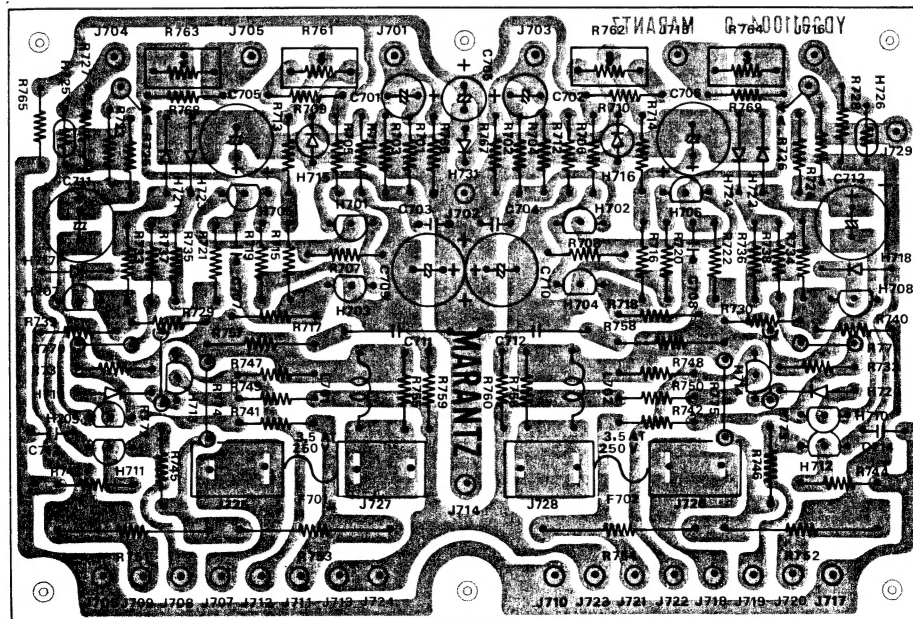


Figure 9. Main Amplifier Assembly P700 Component Locations

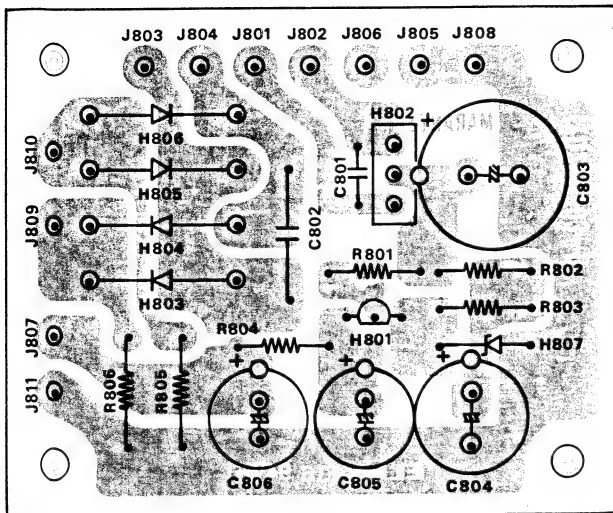


Figure 10. Power Supply Assembly P800
Component Locations

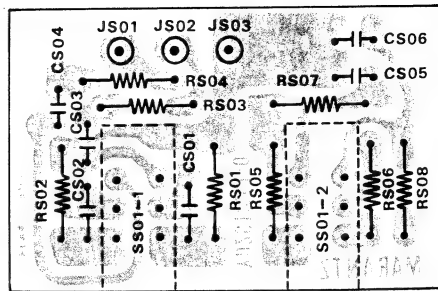


Figure 11. Loudness and Hi Filter Switch
Assembly PS01 Component Locations

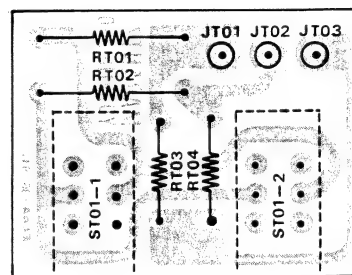


Figure 12. Speaker Switch
Assembly PT01 Component
Locations

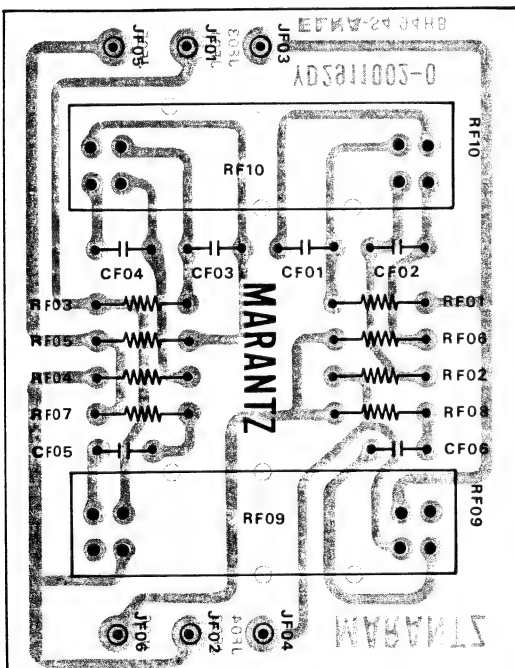


Figure 13. Tone Control Assembly PF01
Component Locations



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NOTE

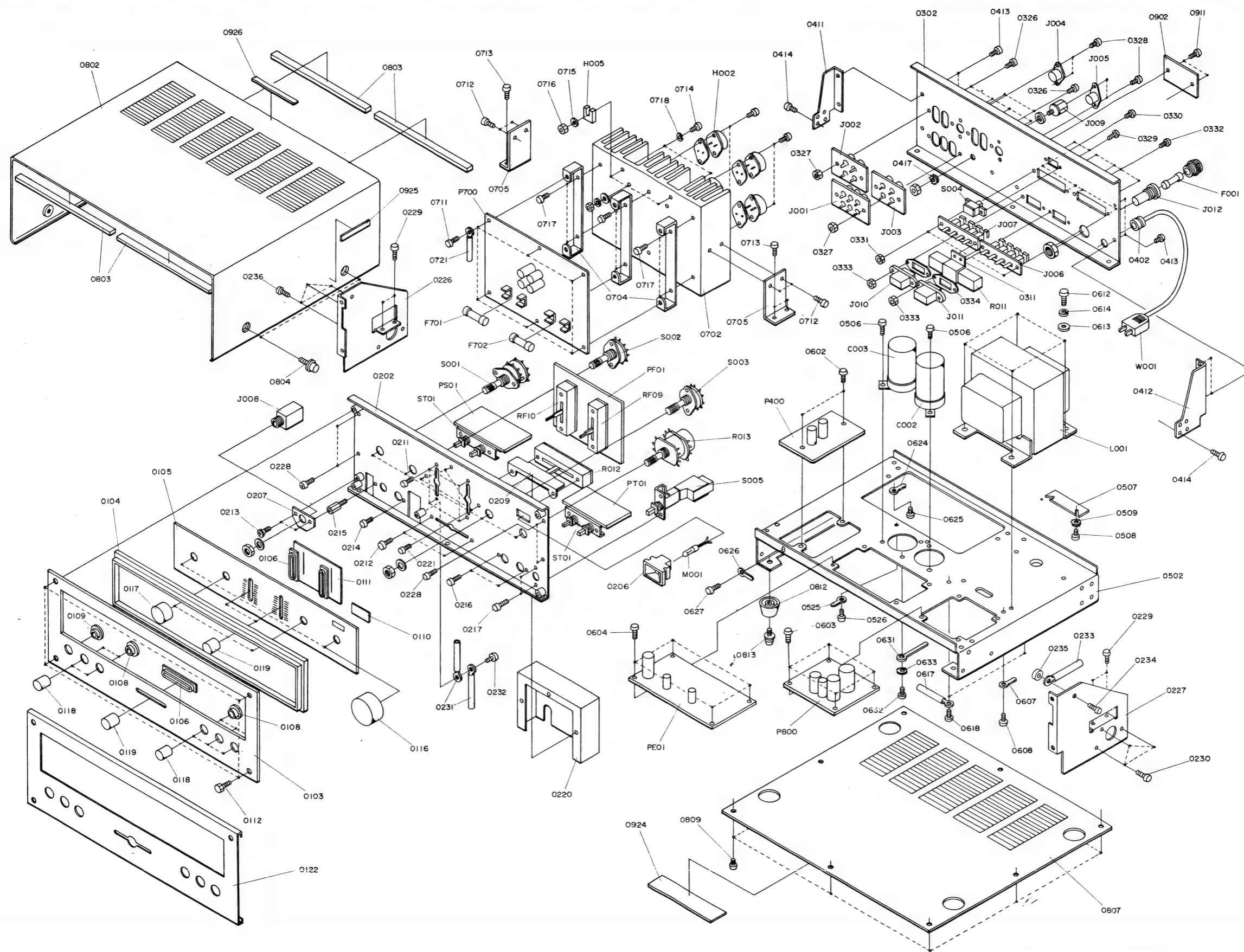
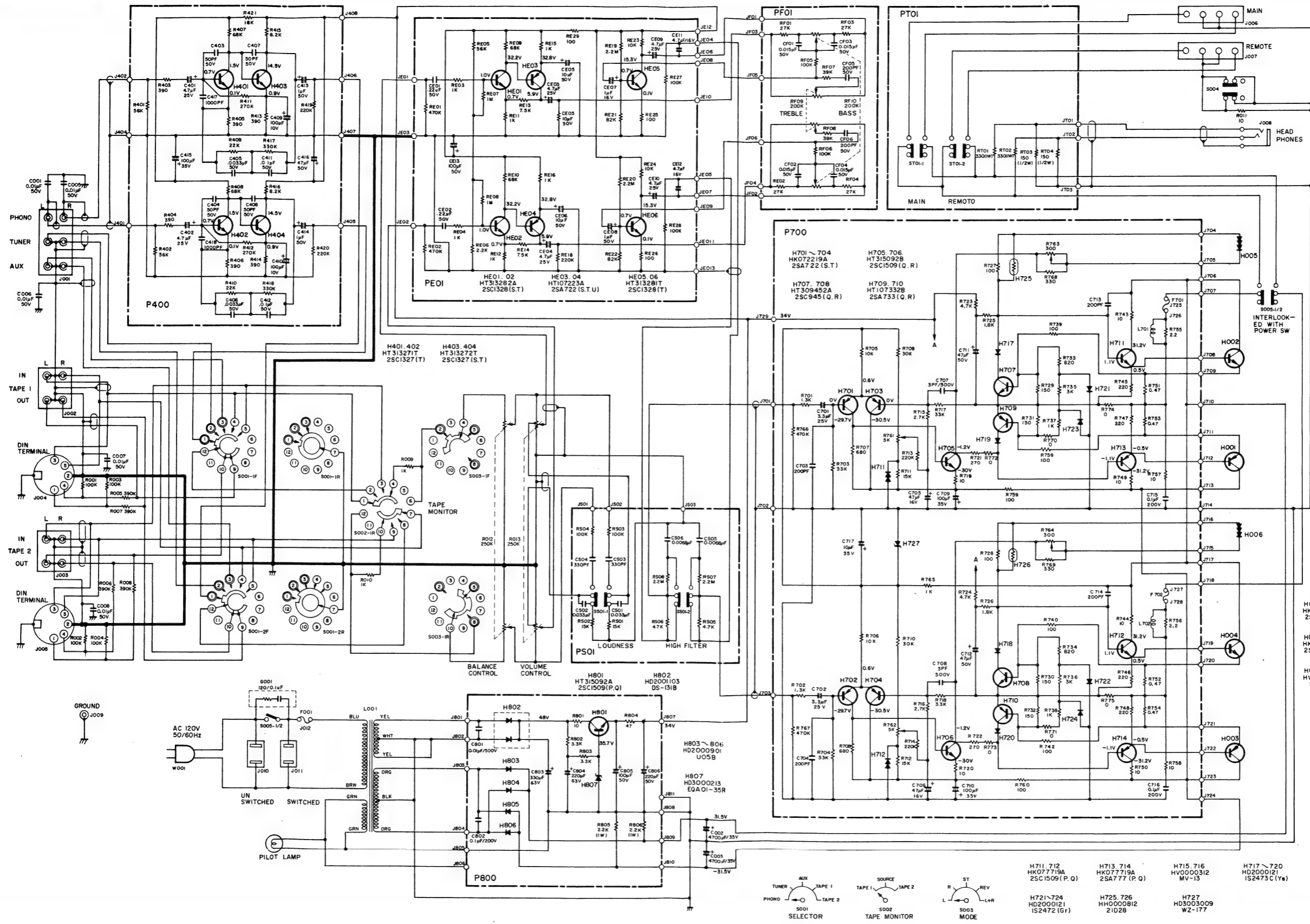


Figure 14. Exploded Mechanical Diagram



H001.003
HK083719A
25A837(P,Q)

H002.004
HK083719A
25C1667(P,Q)

H005.006
HV000508
STV-3H(Y)

H711.712
HK077719A
25C1509(P,Q)

H713.714
HK077719A
25A777(P,Q)

H715.716
HV000312
MV-13

H717.720
HD2000121
IS2473C(Ye)

H721-724
HD2000121
IS2472(Gr)

H725.726
HV0000812
21D28

H727
HD3003009
WZ-177



9. PARTS LIST

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
A	291106340	Front Panel Assembly	H404	HT313272A	Transistor, 2SC 1327 (S.T)
0103	291106301	Escutcheon	J401	YP1000113	Plug
0104	291240101	Frame	J402	YP1000113	Plug
0105	291106302	Escutcheon	J403	YP1000113	Plug
0106	285025901	Bush x 2	J404	YP1000113	Plug
0107	285425901	Bush	J405	YP1000113	Plug
0108	288625901	Bush x 5	J406	YP1000113	Plug
0109	273125901	Bush	J407	YP1000113	Plug
0110	291205303	Cover	J408	YP1000113	Plug
0111	292630301	Mask	0626	62030039W	Lug
0122	291105301	Cover			
		PHONO AMP. CIRCUIT BOARD-P400			TONE AMP. CIRCUIT BOARD-PE01
P400	YD2911007	P.W. Board, Phono Amp. (Print Only)	PE01	YD2911005	P.W. Board, Tone Amp. (Print Only)
	ZZ2911007	P.W. Board Assembly		ZZ2911005	P.W. Board Assembly
		P400—RESISTORS			PE01—RESISTORS
		All resistors are $\pm 5\%$ and $\frac{1}{4}W$.			All resistors are $\pm 5\%$, and $\frac{1}{4}W$.
R401	RT0556314	56K Ω	RE01	RT0547414	470K Ω
R402	RT0556314	56K Ω	RE02	RT0547414	470K Ω
R403	RT0539114	390 Ω	RE03	RT0510214	1K Ω
R404	RT0539114	390 Ω	RE04	RT0510214	1K Ω
R405	RT0539114	390 Ω	RE05	RT0556314	56K Ω
R406	RT0539114	390 Ω	RE06	RT0522214	2.2K Ω
R407	RN0568314	68K Ω	RE07	RN0510514	1M Ω
R408	RN0568314	68K Ω	RE08	RN0510514	1M Ω
R409	RT0522314	22K Ω	RE09	RT0568314	68K Ω
R410	RT0522314	22K Ω	RE10	RT0568314	68K Ω
R411	RN0527414	270K Ω	RE11	RT0510214	1K Ω
R412	RN0527414	270K Ω	RE12	RT0510214	1K Ω
R413	RT0539114	390 Ω	RE13	RT0575214	7.5K Ω
R414	RT0539114	390 Ω	RE14	RT0575214	7.5K Ω
R415	RT0582214	8.2K Ω	RE15	RT0510214	1K Ω
R416	RT0582214	8.2K Ω	RE16	RT0510214	1K Ω
R417	RN0533414	330K Ω	RE17	RT0522414	220K Ω
R418	RN0533414	330K Ω	RE18	RT0522414	220K Ω
R419	RT0522414	220K Ω	RE19	RT0522514	2.2M Ω
R420	RT0522414	220K Ω	RE20	RT0522514	2.2M Ω
R421	RT0518314	18K Ω	RE21	RT0568314	68K Ω
		P400—CAPACITORS	RE22	RT0568314	68K Ω
C401	EE4750251	Electroly, 4.7 μF $\pm 20\%$, 25V	RE23	RT0510314	10K Ω
C402	EE4750251	Electroly, 4.7 μF $\pm 20\%$, 25V	RE24	RT0510314	10K Ω
C403	DD1650001	Ceramic, 50PF $\pm 10\%$, 50V	RE25	RT0510114	100 Ω
C404	DD1650001	Ceramic, 50PF $\pm 10\%$, 50V	RE26	RT0510114	100 Ω
C405	DF1633205	Film, 0.0033 μF $\pm 10\%$, 50V	RE27	RT0510414	100K Ω
C406	DF1633205	Film, 0.0033 μF $\pm 10\%$, 50V	RE28	RT0510414	100K Ω
C407	DD1650001	Ceramic, 50PF $\pm 10\%$, 50V	RE29	RT0510114	100 Ω
C408	DD1650001	Ceramic, 50PF $\pm 10\%$, 50V			PE01—CAPACITORS
C409	EA1070109	Electroly, 100 μF $+100\%$, -10% , 10V	CE01	DF1722405	Film, 0.22 μF $\pm 20\%$, 50V
C410	EA1070109	Electroly, 100 μF $+100\%$, -10% , 10V	CE02	DF1722405	Film, 0.22 μF $\pm 20\%$, 50V
C411	DF1610305	Film, 0.01 μF $\pm 10\%$, 50V	CE03	EE4750251	Electroly, 4.7 μF $\pm 20\%$, 25V
C412	DF1610305	Film, 0.01 μF $\pm 10\%$, 50V	CE04	EE4750251	Electroly, 4.7 μF $\pm 20\%$, 25V
C413	EE1050501	Electroly, 1 μF $\pm 20\%$, 50V	CE05	EA1060509	Electroly, 10 μF $+100\%$, -20% , 50V
C414	EE1050501	Electroly, 1 μF $\pm 20\%$, 50V	CE06	EA1060509	Electroly, 10 μF $+100\%$, -20% , 50V
C415	EA1070359	Electroly, 100 μF $+100\%$, -10% , 35V	CE07	EE1050501	Electroly, 1 μF $\pm 20\%$, 50V
C416	EA4760509	Electroly, 47 μF $+100\%$, -10% , 50V	CE08	EE1050501	Electroly, 1 μF $\pm 20\%$, 50V
C417	DK1610201	Ceramic, 1000PF	CE09	EE4750251	Electroly, 4.7 μF $\pm 20\%$, 25V
C418	DK1610201	Ceramic, 1000PF	CE10	EE4750251	Electroly, 4.7 μF $\pm 20\%$, 25V
		P400—MISCELLANEOUS	CE11	EQ4750161	Electroly, 4.7 μF $\pm 30\%$, 16V
H401	HT313271T	Transistor, 2SC1327(T)	CE12	EQ4750161	Electroly, 4.7 μF $\pm 30\%$, 16V
H402	HT313271T	Transistor, 2SC1327(T)	CE13	EA1070509	Electroly, 100 μF $+50\%$, -20% , 50V
H403	HT313272A	Transistor, 2SC1327(S.T)			

REF. DESIG.	PART NO.	DESCRIPTION
PE01-MISCELLANEOUS		
HE01	HT313282A	Transistor, 2SC1328 (S.T)
HE02	HT313282A	Transistor, 2SC1328 (S.T)
HE03	HT107223A	Transistor, 2SA722 (S.T.U)
HE04	HT107223A	Transistor, 2SA722 (S.T.U)
HE05	HT313281T	Transistor, 2SC1328 (T)
HE06	HT313281T	Transistor, 2SC1328 (T)
JE01	YP1000113	Plug
JE02	YP1000113	Plug
JE03	YP1000113	Plug
JE04	YP1000113	Plug
JE05	YP1000113	Plug
JE06	YP1000113	Plug
JE07	YP1000113	Plug
JE08	YP1000113	Plug
JE09	YP1000113	Plug
JE10	YP1000113	Plug
JE11	YP1000113	Plug
JE12	YP1000113	Plug
0711	51100306A	B.H.M. Screw x 6 B3 x 6
P700	YD2911004 ZZ2911004	MAIN AMP. CIRCUIT BOARD-P700 P.W. Board, Main Amp. (Print Only) P.W. Board Assembly
RESISTORS All resistors are ±5% and ¼W, unless otherwise indicated.		
R701	RT0513214	1.3KΩ
R702	RT0513214	1.3KΩ
R703	RT0533314	33KΩ
R704	RT0533314	33KΩ
R705	RT0510314	10KΩ
R706	RT0510314	10KΩ
R707	RT0568114	680 Ω
R708	RT0568114	680 Ω
R709	RT0530314	30KΩ
R710	RT0530314	30KΩ
R711	RT0515314	15KΩ
R712	RT0515314	15KΩ
R713	RT0522414	220K Ω
R714	RT0522414	220K Ω
R715	RT0527214	2.7K Ω
R716	RT0527214	2.7KΩ
R717	RT0533314	33K Ω
R718	RT0533314	33K Ω
R719	RT0510014	10 Ω
R720	RT0510014	10 Ω
R721	RT0527114	270 Ω
R722	RT0527114	270 Ω
R723	GF0547214	4.7KΩ
R724	GF0547214	4.7KΩ
R725	GF0518214	1.8K Ω
R726	GF0518214	1.8KΩ
R727	RT0510114	100 Ω
R728	RT0510114	100 Ω
R729	GF0515114	150 Ω
R730	GF0515114	150 Ω
R731	GF0515114	150 Ω
R732	GF0515114	150 Ω
R733	RT0582114	820K Ω

REF. DESIG.	PART NO.	DESCRIPTION
R734	RT0582114	820KΩ
R735	RT0530214	1.3KΩ
R736	RT0530214	1.3KΩ
R737	RT0510214	1KΩ
R738	RT0510214	1KΩ
R739	GF0510114	100Ω
R740	GF0510114	100Ω
R741	GF0510114	100Ω
R742	GF0510114	100Ω
R743	GF0510014	10Ω
R744	GF0510014	10Ω
R745	GF0522114	220Ω
R746	GF0522114	220Ω
R747	GF0522114	220Ω
R748	GF0522114	220Ω
R749	GF0510014	10Ω
R750	GF0510014	10Ω
R751	GW1047202	0.47Ω ±10%, 2W
R752	GW1047202	0.47Ω ±10%, 2W
R753	GW1047202	0.47Ω ±10%, 2W
R754	GW1047202	0.47Ω ±10%, 2W
R755	RC1002212	2.2Ω ±10%, ½W
R756	RC1002212	2.2Ω ±10%, ½W
R757	BT0510002	10Ω ±5%, 2W
R758	GT0510002	10Ω ±5%, 2W
R759	GF0510114	100Ω
R760	GF0510114	100Ω
R761	RA0502017	Trimming, 5KΩ ±20%
R762	RA0502017	Trimming, 5KΩ ±20%
R763	RA0301002	Trimming, 300Ω ±20%
R764	RA0301002	Trimming, 300Ω ±20%
R765	GF0510214	1KΩ
R766	RT0547414	470KΩ
R767	RT0547414	470KΩ
R768	RT0533114	330Ω
R769	RT0533114	330Ω
R770	RC0000012	0Ω
R771	RC0000012	0Ω
R772	RC0000012	0Ω
R773	RC0000012	0Ω
R774	RC0000012	0Ω
R775	RC0000012	0Ω
P700—CAPACITORS, COILS & FUSES		
C701	EE3350251	Electroly, 3.3µF, 25V
C702	EE3350251	Electroly, 3.3µF, 25V
C703	DD1620101	Ceramic, 200PF ±10%
C704	DD1620101	Ceramic, 200PF ±10%
C705	EE4760161	Electroly, 47µF, 16V
C706	EE4760161	Electroly, 47µF, 16V
C707	DD1003050	Ceramic, 3PF, 500V
C708	DD1003050	Ceramic, 3PF, 500V
C709	EA1070359	Electroly, 100µF, 35V
C710	EA1070359	Electroly, 100µF, 35V
C711	EA4760509	Electroly, 47µF, 50V
C712	EA4760509	Electroly, 47µF, 50V
C713	DD1620101	Ceramic, 200PF ±10%
C714	DD1620101	Ceramic, 200PF ±10%
C715	DF1710452	Ceramic, 0.1µF, 200V
C716	DF1710452	Ceramic, 0.1µF, 200V
C717	EA1060359	Electroly, 10µF, 35V
L701	LC2272001	Coil, 2.7µH

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
J006	YT0304006	Terminal, Speaker	1002	291185101	Instructions, Set, For U.S.A.
J007	YT0304006	Terminal, Speaker	1011	291185601	Schematic Diagram, For U.S.A.
J009	YT0101003	Terminal, Ground	1020	281885104	Instructions, Packing
J010	YJ0400048	Socket, AC Outlet	1021	282885108	Instructions, Accessories
J011	YJ0400048	Socket, AC Outlet	1022	288585107	Instructions, Cabinet Mounting
J012	YJ0800012	Socket, Fuse Holder, For U.S.A.	1026	257785401	Guarantee Card
C006	DK1710301	Ceramic Cap., 0.01μF, 50V	1027	257785102	Instructions
C007	DK1710301	Ceramic Cap., 0.01μF, 50V	1028	257781301	Envelope, For U.S.A.
0624	62030039W	Lug	1102	291180101	Packing Case, Inner
C001	DK1710301	Ceramic Cap., 0.01μF, 50V	1103	291180111	Packing Case, Outer
C005	DK1710301	Ceramic Cap., 0.01μF, 50V	1108	289180301	Partitioner x 2
C008	DK1710301	Ceramic Cap., 0.01μF, 50V	1112	901383033	Polyethylen Bag, Set
0617	138200503	Clamper x 2	1114	901302501	Polyethylen Bag, Printed Matter
L001	TS1850209	Power Transf., For U.S.A.	1117	102980401	Sleeve, AC Cord
C002	EC4780352	Electroly Cap., 4700μF, 35V	1119	273182101	Silicagel x 2
C003	EC4780352	Electroly Cap., 4700μF, 35V	1122	952281501	Serial No Card x 4, For U.S.A.
0229	51570306B	P. H. Tapt Screw x 4 P 3 x 6 ST			
0230	51100305A	B. H.M. Screw x 6 B 3 x 5			
0414	51100306A	B. H.M. Screw x 8 B 3 x 6			
0502	291110501	Chassis			
0506	51570306B	P. H. Tapt Screw x 4 P 3 x 6 ST			
0507	291116005	Bracket			
0508	51570306B	P. H. Tapt Screw P 3 x 6 ST			
0509	54050300R	T. L. Washer OR			
0526	51570306B	P. H. Tapt Screw P 3 x 6 ST			
0602	51570306B	P. H. Tapt Screw x 2 P 3 x 6 ST			
0603	51570306B	P. H. Tapt Screw x 3 P 3 x 6 ST			
0604	51570306B	P. H. Tapt Screw x 4 P 3 x 6 ST			
0612	51570408B	P. H. Tapt Screw x 4 P 4 x 8 ST			
0613	54020401A	Flat Washer P x 4			
0614	54040402N	Spring Washer x 4			
0618	51570306B	P. H. Tapt Screw x 2 P 3 x 6 ST			
0625	51570306B	P. H. Tapt Screw P 3 x 6 ST			
0629	51570306B	P. H. Tapt Screw P 3 x 6 ST			
0631	121000501	Clamper			
0632	51570306B	P. H. Tapt Screw P 3 x 6 ST			
0633	54050300R	T. L. Washer OR			
0713	51570306B	P. H. Tapt Screw x 4 P 3 x 6 ST			
0812	275905701	Leg x 4			
0813	51490410S	B. H. M. Screw F S x 4 B 4 x 10 F/S			
0931	288686101	Label, Marantz			
0112	52017039J	Bolt x 4			
0116	282815401	Knob, Selector/Balance x 2			
0117	282815402	Knob, Mode/Tape Mon. x 2			
0118	281815401	Knob, Hi Filter/Loudness/Main/Remote/Power x 5			
0119	285015401	Knob, Balance/Bass/Treble x 3			
0802	282825701	Lid, Top			
0803	257711807	Spacer x 4			
0804	51480406S	B. H. M. Screw B 4 x 6 F			
0807	282825702	Lid, Bottom			
0809	51100406S	B. H. M. Screw F x 8 B 4 x 6 F			
0902	291126501	Indicator, For U.S.A.			
0911	51100305S	B. H. M. Screw x 2 B 3 x 5			
0914	951091102	Label, UL Factor Code, For U.S.A.			
0915	951120101	Label, UL, For U.S.A.			
0924	257886101	Label, Caution to prevent			
0925	257886102	Label, Do not remove cover.			
0926	257886103	Label, See marking on botton.			

10. TECHNICAL SPECIFICATIONS

Gain – Phono (low level)	75 dB
Phono to recording output	37 dB
High level	38 dB
Input Impedance – Low level input	Phono 47 Kohms
– High level input	50 Kohms
Input Sensitivity – Phono (Low)	2.1 mV
Frequency Response	±2 dB, 20 Hz to 20 kHz at rated power output
Intermodulation Distortion	Less than 0.3% at rated power output from 20 Hz to 20 kHz with both channels driven (S.M.P.T.E.)
Damping Factor	Greater than 20 into 8 ohms load
Total Noise – From magnetic phono input	Less than 2.5μV equivalent input at rated output into 8 ohms
Volume Tracking	Within 3 dB
Rated Power Output (Continuous average per channel, all channels driven.)	
Power Output	20 Watts 4 ohms 20 Watts 8 ohms 15 Watts 16 ohms
Power Band	20Hz to 20kHz
THD	0.3%

GENERAL

Power Requirements	120 Volts ~ 50/60Hz)
(This unit can be converted by a qualified technician to operate on 110/220/240 ~ 50/60Hz)	
Power Consumption – at rated power output, both channels operating	125 Watts
idling power (volume control at zero)	20 Watts
Dimensions – Panel Width	14-1/8 inches
– Panel Height	4-3/4 inches
– Depth	11 inches
Weight – Unit alone	16.4 lbs
– Packed for shipment	23.2 lbs

SERVICE INFORMATION FOR EUROPEAN MODEL

The information contained here in includes the rear panel and main chassis component locations, schematic diagram, parts list and voltage conversion.

For the circuit description, alignment method and repairing hints, refer to the original service manual.

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Rear Panel Adjustments and Facilities Locations	22
Main Chassis Component Locations (Top View)	22
Schematic Diagram	23~24
Voltage Conversion	25
Parts List	26

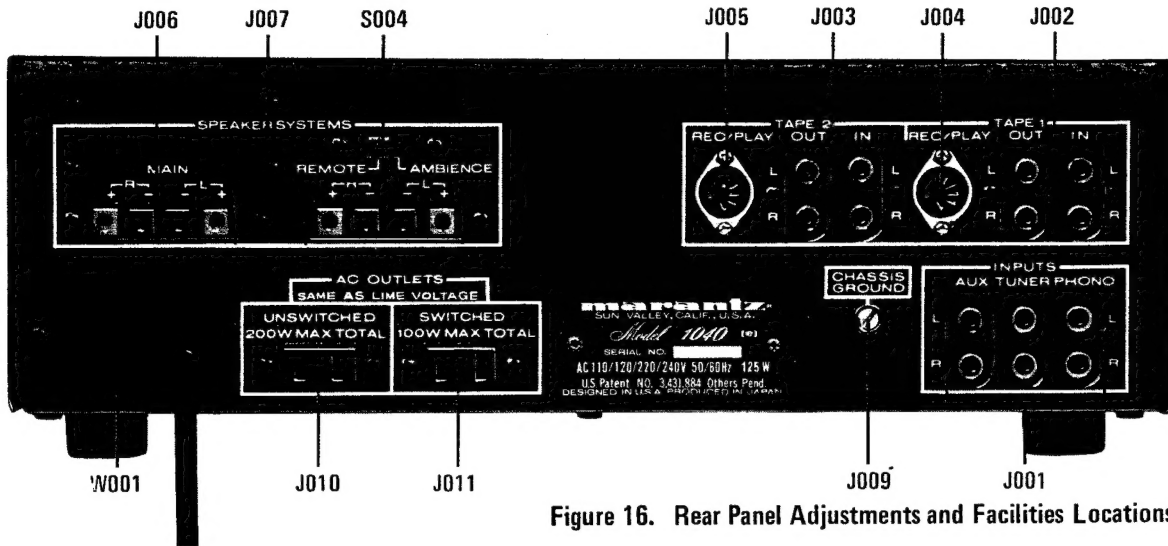


Figure 16. Rear Panel Adjustments and Facilities Locations

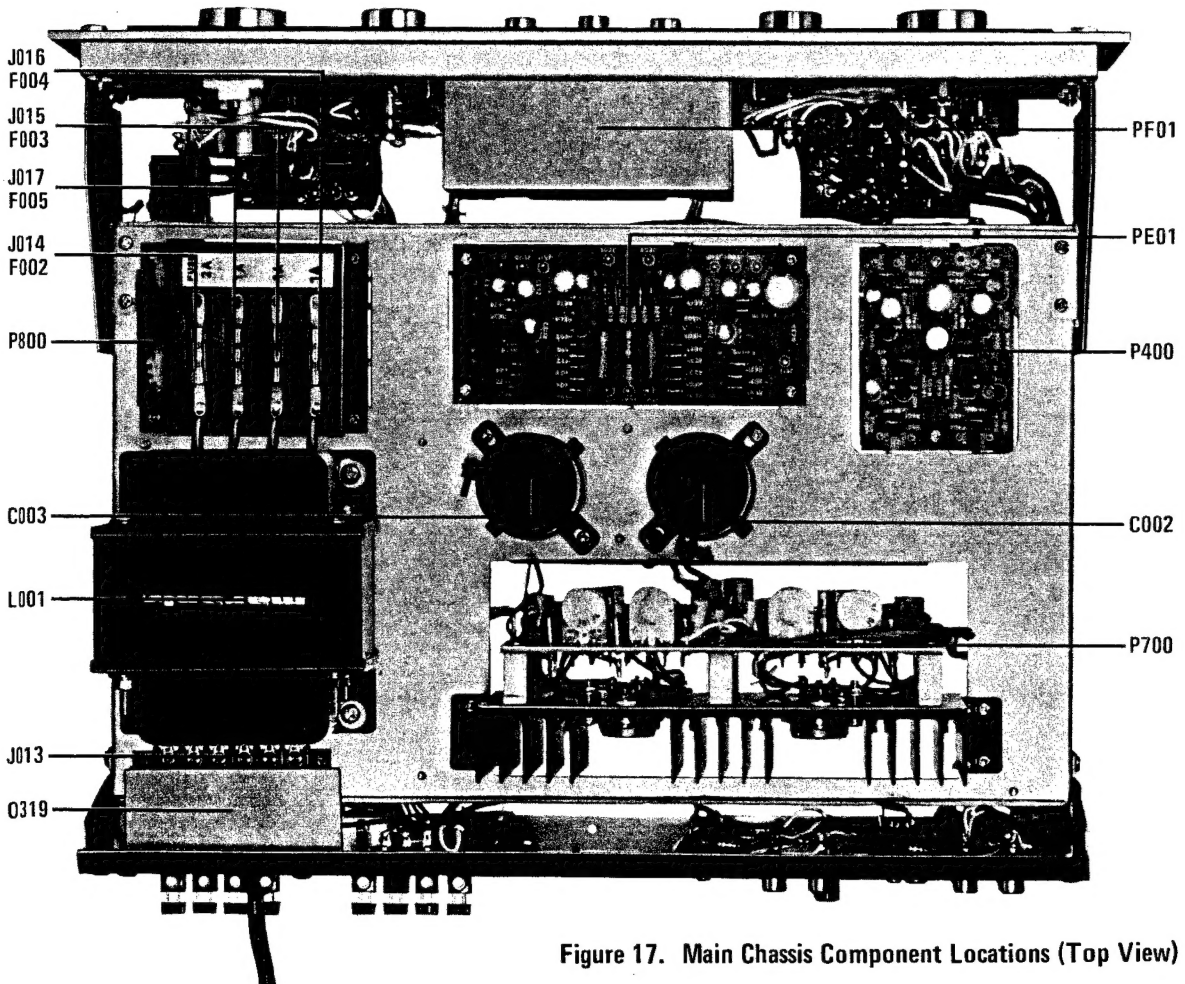


Figure 17. Main Chassis Component Locations (Top View)

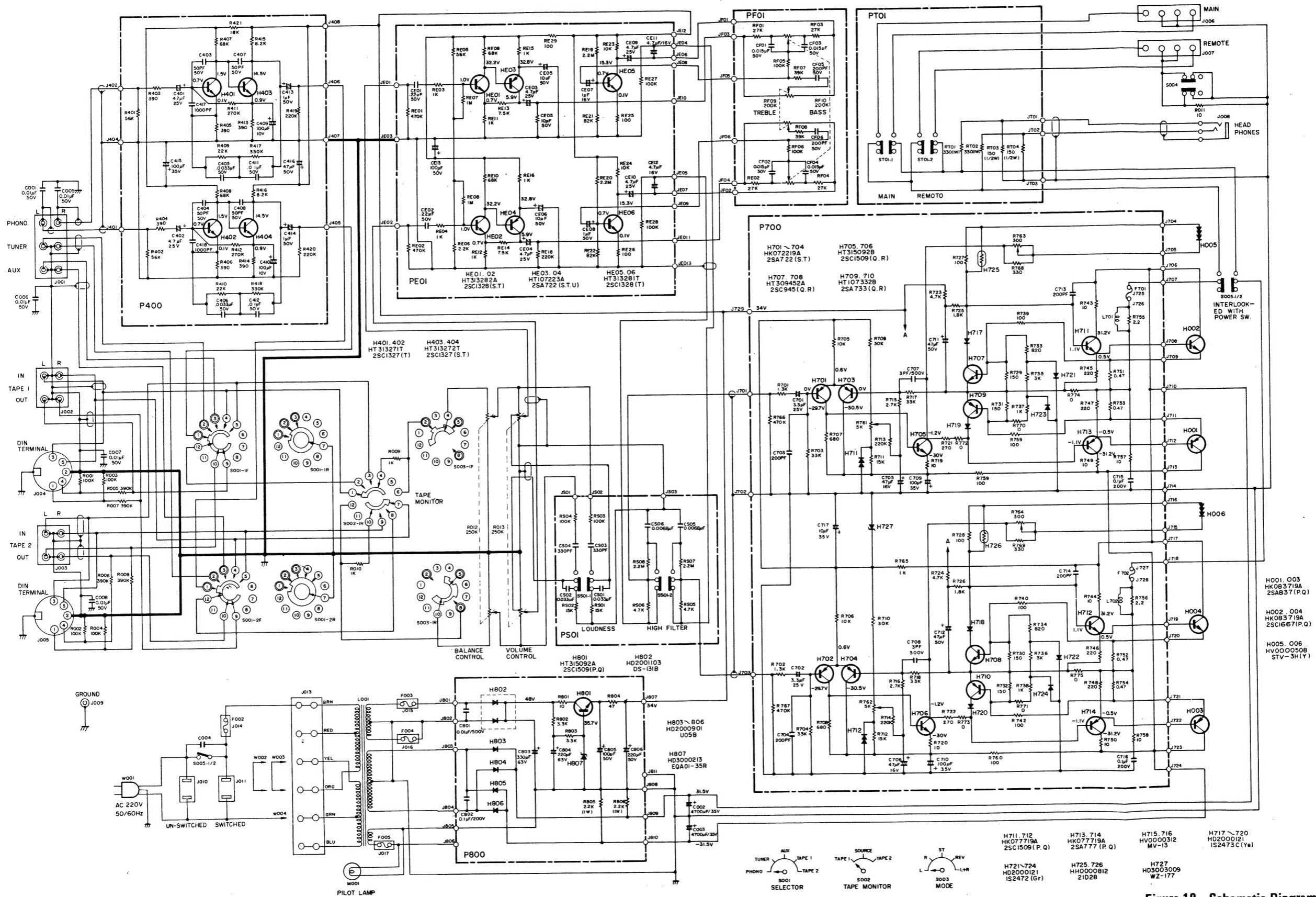


Figure 18. Schematic Diagram

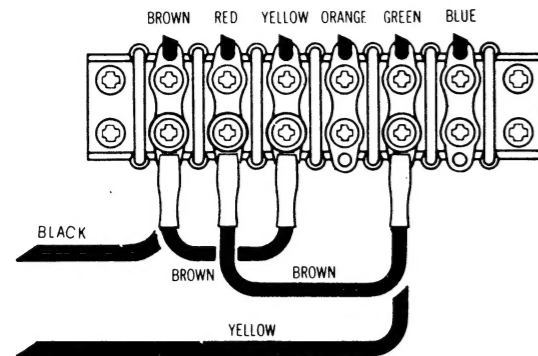
VOLTAGE CONVERSION

This model is equipped with a universal power transformer to permit operation at 110, 120, 220 and 240 V AC 50 to 60 Hz.

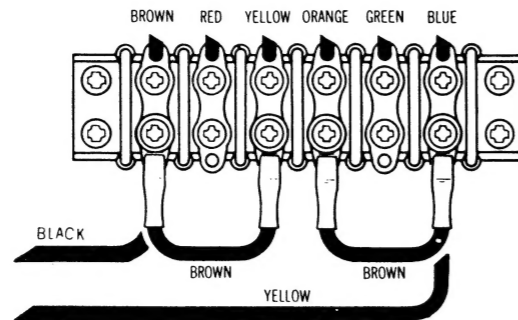
To convert the unit to the required voltage perform the following steps:

- (1) Remove the lid (top).
- (2) Change the jumper wires as illustrated below for the required AC voltage.

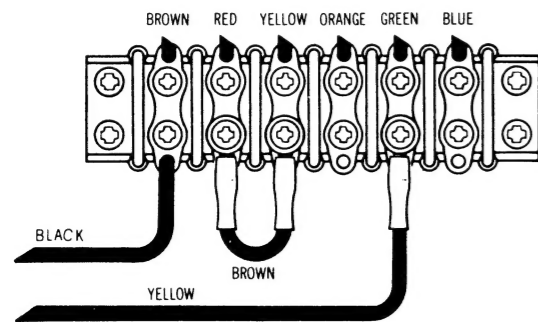
CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.



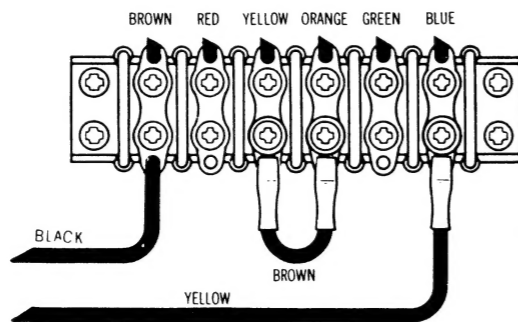
For 110V Operation



For 120V Operation



For 220V Operation



For 240V Operation

Figure 19. Voltage Conversion Chart

PARTS LIST

REF. DESIG.	PART NO.	DESCRIPTION
W001	YC0190003	AC Cord
0304	291116003	Bracket
0318	51100306S	B.H.M. Screw x 2 B 3 x 6
0321	51100306S	B.H.M. Screw x 2 B 3 x 6
0403	282125901	Bush, AC Cord
0404	53110303A	Hexagon Nut x 2
0405	54050300R	T.L. Washer OR x 2
0406	51060316A	B.H.M. Screw x 2 B 3 x 16
0407	55060305S	T.R. Rivet x 2
0408	284906702	Cap
J013	YL0106004	Terminal
W002	YB0007001	Connective Cord
W003	YB0007001	Connective Cord
W004	YB0027001	Connective Cord
0316	281816006	Bracket
0317	51100312A	B.H.M. Screw x 4 B 3 x 12
0319	282126902	Protector
0320	288912005	Insulator
0322	285412001	Insulator
J014	YJ0800009	Socket, Fuse Holder
J015	YJ0800009	Socket, Fuse Holder
J016	YJ0800009	Socket, Fuse Holder
J017	YJ0800009	Socket, Fuse Holder
0516	282816012	Bracket
0517	51100306A	B.H.M. Screw x 4 B 3 x 6
0518	53110303A	Hexagon Nut x 4
0930	291126510	Indicator, Ampere Label
1001	TS1850210	Power Transf.
F002	FS1020005	Fuse, 250V, 2A
F003	FS1010007	Fuse, 250V, 1A
F004	FS1010007	Fuse, 250V, 1A
0904	291126503	Indicator
1004	291185121	Instructions, Set
1012	291185602	Schematic Diagram
1024	281881301	Envelope
1118	956000004	Hang Tag, Voltage Indicator
1124	952301511	Serial NO. Card x 4

* To be used in the European Model Only.